State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining

Coal Regulatory Program Directive

Directive Number: Tech-003

Effective Date: July 1, 1997

Supersedes: Sediment Control Measures for Disturbed Coal Mine Lands Directive Dated June 7, 1995

Subject: **Sediment Control Measures for Disturbed Coal Mine Lands**

Approved: _____ On: _____
James W. Carter, Director, Division of Oil, Gas, and Mining

DISCLAIMER

"This non-binding directive is intended for internal direction for the Utah Coal Regulatory Program to clarify the implementation of the Utah Coal Rules. It neither confers rights nor imposes obligations on the Division or any other party. In the case where a conflict is perceived to exist between this directive and the Utah Coal Rules, the rules prevail."

ABSTRACT

The Coal Regulatory Program requires that Utah mines design, construct, and maintain appropriate sediment controls using the Best Technology Currently Available to: (1) prevent to the extent possible, additional contribution of sediment to streamflow or runoff outside the permit area, (2) meet the applicable effluent limits, and (3) minimize erosion, to the extent possible. This directive provides the guidance necessary to achieve the goals and objectives of a successful sediment control program. By defining terms, stating objectives, and identifying responsibilities, it is meant to clarify the Division's position on Alternative Sediment Control.

Table of Contents

1. Executive Summary and Purpose

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) provides for the extraction of coal from the earth in an environmentally sound manner. One consideration in environmentally safe mining is the control of both surface runoff and of the amount of sediment that is allowed to move offsite and into the natural waterways. As contemplated in SMCRA 101(f) and the Utah Cooperative Agreement, the Utah Division of Oil, Gas and Mining carries the primary responsibility for implementing SMCRA within the State of Utah.

The goal of the Utah program is to control runoff and sediment from disturbed areas so that coal mining surface disturbances do not have an adverse impact on streamflow or on contiguous undisturbed areas outside the permitted disturbed area. Under the approved Utah program two classes of sediment control measures are acceptable as Best Technology Currently Available (BTCA). They are:
1) Sediment ponds and/or "other treatment facilities", and 2) "alternate sediment control measures". A third programmatic option in Utah is the exemption of small areas from sediment control practices. Sediment control at Utah coal mines should be approached by investigating possible measures in the order noted in the preceding two sentences.

This Directive provides guidelines on sediment control to facilitate permitting of and compliance at Utah coal mines. The applications of BTCA and SAE's to sediment control are clarified. Information regarding the design of BTCA measures is provided.

2. Regulatory Basis

R645-301-741 thru 742.126 and 742.240.

741. General Requirements. Each permit application will include site-specific plans that incorporate minimum design criteria as set forth in R645-301-740 for the control of drainage from disturbed and undisturbed areas.

742. Sediment Control Measures.

742.100. General Requirements.

742.110. Appropriate sediment control measures will be designed, constructed and maintained using the best technology currently available to:
742.111. Prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area;

742.112. Meet the effluent limitations under R645-301-751; and

742.113. Minimize erosion to the extent possible.

742.120. Sediment control measures include practices carried out within and adjacent to the disturbed area. The sedimentation storage capacity of practices in and downstream from the disturbed areas will reflect the degree to which successful mining and reclamation techniques are applied to reduce erosion and control sediment. Sediment control measures consist of the utilization of proper mining and reclamation methods and sediment control practices, singly or in combination. Sediment control methods include, but are not limited to:

742.121. Retaining sediment within disturbed areas;

742.122. Diverting runoff away from disturbed areas;

742.123. Diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion;

742.124. Using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds and other measures that reduce overland flow velocities, reduce runoff volumes or trap sediment;

742.240. Exemptions. Exemptions to the requirements of R645-301-742.200 and R645-301-763 may be granted if the disturbed drainage area within the total disturbed area is small and the operator demonstrates that siltation structures and alternate sediment control measures are not necessary for drainage from the disturbed areas to meet the effluent limitations under R645-301-751 or the applicable Utah and federal water quality standards for the receiving waters.

3. Definitions

"Siltation Structure" means, for the purposes of

R645-301-356.300, R645-301-356.400, R645-301-513.200, R645-301-742.200 through R645-301-742.240, and R645-301-763, a sedimentation pond, a series of sedimentation ponds or other treatment facilities.

"Other Treatment Facilities" means, for the purposes of R645-301-356.300, R645-301-356.400, R645-301-513.200, R645-301-742.200 through R645-301-742.240, and R645-301-763, any chemical treatments, such as flocculation or mechanical structures such as clarifiers, that have a point source discharge and that are utilized to prevent additional contribution of suspended solids to stream flow or runoff outside the permit area.

"Impounding Structure" means a dam, embankment, or other structure used to impound water, slurry or other liquid or semi-liquid material. For the purposes of this directive, filtration devices and/or berms whose purpose is to contain stockpiled topsoil, overburden, or dry spoil at a specified, approved location, and Alternate Sediment Control Measures are not considered impounding structures. However, the Division may require one of the previously mentions measures to be permitted as an impoundment if it is determined that the measure's size and/or location creates a hazard to life, property, or the environment.

"Alternate Sediment Control Measure" means, for the purpose of this directive, any sediment control measure other than siltation structures.

"Best Technology Currently Available" means equipment, devices, systems, methods, or techniques which will: (1) prevent, to the extent possible, additional contributions of suspended solids to stream flow or runoff outside the permit area, but in no event result in contributions of suspended solids in excess of requirements set by applicable state or federal laws; and (2) minimize, to the extent possible, disturbances and adverse impacts on fish, wildlife, and related environmental values, and achieve enhancement of those resources where practicable. The term includes equipment, devices, systems, methods, or techniques which are currently available anywhere as determined by the Director, even if they are not in routine use. The term includes, but is not limited to, construction practices, siting requirements, vegetation selection and planting requirements, animal stocking requirements, scheduling of activities and design of sedimentation ponds in accordance with R645-301 and R645-302. Within the constraints of the state program, the Division will have the discretion to determine the Best Technology Currently Available on a case-by-case basis considering, among other things, the economic feasibility of the equipment, devices, systems, methods or techniques, as authorized by the Act and the R645 rules.

"Vegetative Cover" means, for the purpose of this directive, an established growth of vegetation which controls sediment by decreasing the production of sediment due to erosion.

"Vegetative Sediment Filter" means, for the purpose of this directive, a method of sediment control which removes fine sediment from overland flow by routing flow through either cultivated or naturally occurring vegetation. Vegetative filters are located downslope from the sediment source and do not directly control erosion on the disturbed area (OSM, 1985).

"Non-erodible Cover" means, for the purpose of this directive, a ground cover made out of a resilient material, such as rock or concrete, that weathers slowly and produces little to no sediment.

"Primary Sediment Control Measure" means, for the purpose of this directive, sediment control devices whose effluent does not report to siltation structures.

"Supplementary Sediment Control Measure" means, for the purpose of this directive, sediment control devices whose effluent reports to siltation structures.

"Department of Environmental Quality (DEQ)" means the Utah Department of Environmental Quality, the Utah department-level agency that succeeded the Utah Department of Health.

"Division of Water Quality (DWQ)" means the Division of Water Quality within the Utah DEQ. DWQ is the Utah agency responsible for issuance of UPDES permits under the authority of the federal Environmental Protection Agency (EPA).

"Small Area Exemption (SAE)" means, for the purpose of this directive, a disturbed area which is exempt from having its runoff report to a siltation structure or other sediment control measure.

4. Policy

A. The decision of what is or is not a point source is not a determination made under the Surface Mining

Control and Reclamation Act (SMCRA); rather, such a determination is made under the provisions of the Clean Water Act by the agency responsible for implementing that Act.

B. All mining-related disturbances will afford protection that prevents, to the extent possible, additional contributions of sediment to streamflow or runoff outside the permit area.

C. By Memorandum of Understanding (MOU) dated October 16, 1990, between the Division of Oil, Gas and Mining (DOGM) and the Utah Department of Health, Division of Environmental Health, (DEH) covering permitting of mining operations in Utah, DOGM acknowledges that the Utah Water Pollution Committee is the UPDES and UIC permitting authority as delegated by the Environmental Protection Agency (EPA). By letter dated September 30, 1991, in recognition of the newly established Utah Department of Environmental Quality (DEQ) Brent Bradford, Deputy Director, DEQ, assigned this October 16, 1992 MOU to DEQ. All permitting actions requiring a determination of need for a UPDES permit shall be referred by the Division to DEQ. The October 16, 1990 MOU and the September 30, 1991 letter, assigning the MOU to DEQ, are incorporated into this directive as Appendix A.

D. Effluent limits for Alternative Sediment Control Areas shall be those established by DEQ, Division of Water Quality's review of the application. Where UPDES permits are required by DEQ/DWQ, the Division will review designs to ensure designs meet the applicable regulatory requirements. Where UPDES permits are not specificized after review by DEQ/DWQ, the Division will review the proposed Alternate Sediment Control Measures to determine their applicability as Best Technology Currently Available.

E. Small Area Exemptions (SAE's) will be approved if the disturbed area within the total disturbed area is small and the operator demonstrates that sediment control is not necessary for drainage from the exempted disturbed area to meet all applicable Utah and federal water quality regulations pertaining to non-point source disturbances. In applying for an SAE, the operator must provide a demonstration that the area will meet applicable effluent limits. A demonstration based on SEDCAD or other professionally accepted methodology that is based on the Universal Soil Loss Equation shall be deemed an acceptable demonstration for consideration for an SAE.

5. Procedure

A. Protective measures - that prevent, to the extent possible, additional contributions of sediment to streamflow or runoff outside the permit area - will be assured by employing an appropriate combination of approved Best Technology Currently Available (BTCA). Siltation structures are the preferred BTCA, and where the construction of such structures would cause an increase in surface disturbance that outweighs the benefits of treatment by the structure will require use of alternative sediment control measures. Sediment control measures will be employed prior to any disturbance and until reclamation has progressed to the point where the operator has demonstrated and the Division has made a written finding that specified areas are exempt from sediment control.

B. Designs for sediment control measure will be completed by the permittee and submitted to the Division for approval. All disturbed area drainage must be clearly depicted on appropriate maps and identified with their respective sediment control measure. A disturbed area acreage calculation for each sediment control area will be provided in the plan in either tabular or narrative form. Designs may be in written, tabular, or graphical form, and must include, at minimum, a generalized description of the methods and elements used to comply with R645-301-742.110. Some elements of a design may not be easily reconstructed, however, in a case the reconstruction is necessary, a new or secondary design may be implemented. For example, the designed measure may become less effective in controlling additional contributions of sediment which makes it necessary to use an additional measure, such as silt fence, until the initial measure's effectiveness is restored. A proposed sediment control measure's design shall include adequate detail to determine the functionality of the specific practice. Table 1 provides a list of standards that Best Technology Currently Available measures must meet.

C. A vegetative filter may or may not be applicable as a Best Technology Currently Available measure, but, when applicable, it should be designed based on the criteria outlined in the OSM Handbook of Alternative Sediment Control Methodologies or other professionally acceptable references.

D. Sediment control measures shall be reviewed by the Division to assure adequacy of design. The Division will substantiate its basis for approval in the TA and will

provide analysis of the information provided on which the adequacy determination is made. References for design and performance considerations will be cited from those listed in the OSM "Handbook of Alternative Sediment Control Technologies" or other professionally acceptable references that meet performance standards in the state of Utah.

E. Proposed designs for an Alternate Sediment Control Measure must be evaluated based on its intended use and

function. Design guidelines found in the Division's Design Guideline Manual for Alternate Sediment Control Measures are examples of successful alternate sediment control applications in certain environments. The intended uses of each type of measure (i.e. silt fence, straw bale, sediment trap, etc.) are discussed in that design manual. The purpose of all Alternate Sediment Control Measures is to minimize erosion, prevent additional contributions of sediment to streamflow, and where used as supplementary sediment control, minimize maintenance of siltation structures.

F. A monitoring plan to sample the drainage below alternative sediment controls should be considered when practical. The parameter to be monitored is settleable solids.

G. The Division will verify that sediment control measures are meeting pertinent performance standards during regular inspections. Performance of all sediment control measures must be gaged in the field. Approved alternate sediment control practices that are in place at the time this directive is implemented and meet performance standards shall be deemed BTCA. If field evidence shows that an approved sediment control measure is not functioning, the sediment control measure will need to be reconstructed or redesigned. If a measure is designed for a particular runoff magnitude then that event is the criteria that it is tested on; otherwise, it will be expected to perform through any storm event.

6. Delegated Responsibilities

A. Division technical staff: Preparation of the Technical Analysis.

B. Permit Supervisor or Associate Director of Mining: Division Findings Document.

C. The Permittee has the responsibility to select and design runoff and sediment control measures using the Best Technology Currently Available.

D. The permittee has the responsibility to assure that all sediment control measures meet performance standards and conditions set forth in the approved Mining and Reclamation Plan (MRP). The Division will evaluate runoff and sediment control measures during regular inspection to determine that they are meeting their intended functions.

7. Reporting Requirements

Monitoring results if required and inspection reports of regular inspections.

8. References

Office of Surface Mining, 1983, Design of Sediment Control Measures for Small Areas in Surface Coal Mining: Washington, D.C., U.S. Department of Interior, p. 4.44-4.53.

Office of Surface Mining, 1985, Handbook of Alternative Sediment Control Methodologies for Mined Lands: Washington, D.C., U.S./ Department of Interior, p. 45-55.

9. Effect on Other Documents

Supersedes Sediment Control Measures for Disturbed Coal Mine Lands directive dated June 7, 1995.

10. Division Contact/Work Group

Daron Haddock, Sharon Flavey, Mike Suflita.

11. Key Words

Alternative Sediment Control, Best Technology Currently Available (BTCA), Primary Sediment Control, Supplementary Sediment Control.

12. Appendices

Appendix A: MOU dated 10-16-90 between DOGM and DEH and 9-30-91 letter assigning the MOU to DEQ. For additional information see Policy, Section (1).

TABLE 1 -- PERMITTING STANDARDS

Runoff & Sediment Control Methods	Design Required	Demonstration Needed	DOGM Approval Required	UPDES Water Sampling	Meet Effluent Standards	Show on MRP Map	Discuss in MRP Text	Must Be Maintained	Adequate Storage	Dewatering Device	Sediment Removal	Treat Runoff	Quarterly Inspections	Annual Certified Inspection	Monitoring Reports
I. Sediment Ponds	Y[a]	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y[b]	Y[b]	Y[c]
II. Alternative Sediment Control Measures (ASCM)	Y	N	Y	--[d]	Y[e]	Y	Y	Y	Y	N	Y	Y	N	N	N
III. Small Area Exemption (SAE)	N	Y[f]	Y	N	Y	Y	Y	N	N	N	N	Y	N	N	Y

This table highlights some of the permitting aspects for the three acceptable methods to treat runoff and control sediment from disturbed and reclaimed Utah Coal mines.

---

[a] **Design must include a primary and emergency spillway except when an open channel spillway is used or as otherwise pro**

[b] **Mandatory formal pond inspections are required; MSHA ponds, weekly inspections in lieu of quarterly inspections.**

[c] Submit to Division of Oil, Gas, and Mining:
- **!** Annual certified inspection report
- **!** UPDES monthly discharge report per UPDES permit

[d] Determined by the Division of Water Quality.

[e] An approved design provides necessary safeguards against additional contributions of suspended solids to stream flow or runoff outside the permit area. Inspections will determine success of the measure.

[f] Demonstrated by showing that the surface disturbance is covered with non-erodible cover, area produces no runoff, or effluent limits will be met.